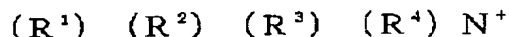


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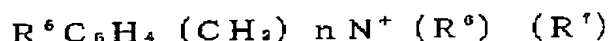


I

APPLICATION DATE : 31-07-97
APPLICATION NUMBER : 09240145

APPLICANT : TEIKOKU CHEM IND CORP LTD;

INVENTOR : OTSUKI TETSUYA;



II

INT.CL. : C01G 23/053 C03C 17/25 C23C 24/10

TITLE : PREPARATION OF PRECURSOR
SOLUTION FOR FORMING THIN
TITANIA FILM



III

ABSTRACT : PROBLEM TO BE SOLVED: To obtain a titanium-contg. soln. suitable for use in the formation of a thin titania film on a substrate by reacting a titanium alkoxide with an aminopolycarboxylic acid and an amine in a polar solvent and adding an oxidizer.

SOLUTION: A titanium alkoxide is reacted with an aminopolycarboxylic acid and an aliphatic amine having $\leq 10C$ alkyl group in a polar solvent and an oxidizer is added to obtain the objective precursor soln. for forming a thin titania film contg. titanium complex ions with coordinated aminopolycarboxylic acid and dioxide ions and amine cations of one of formulae I-III (where R^1 to R^4 are H or a 1-10C alkyl, at least one of them is an alkyl, R^5 and R^8 are dimethylamino, diethylamino, H or a 1-16C alkyl, (n) is 0 or 1 and R^6 and R^7 are each H or a 1-10C alkyl). When the precursor soln. is mixed with silica sol, applied on a substrate of quartz glass, soda lime glass, etc., dried and fired at $\geq 400^\circ C$, a titania/silica composite film is obtd.

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